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JAN 18 1959

TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION
U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

No. 552

The Spread of Oak Wilt, 1955 to 1958

An annual survey to measure the spread of oak wilt has been conducted during the years 1955 to 1958 in central Wisconsin and southeastern Minnesota. The survey is performed by a two-man crew, and it is scheduled to allow a 1-year interval between remeasurements. Since the disease can be spread in two different ways, the survey is designed in two parts so as to obtain a measure of each method of spread.

The first part of the survey involves the measurement of the local spread of oak wilt through root grafts. For this purpose permanent sample plots were established in existing infection centers. By annually remeasuring the radii of the infected area on these plots, it is possible to determine whether the center has increased in size during the preceding 12 months.

The second part of the survey is concerned with the rate of establishment of new infection centers. For this purpose roadside samples of $\frac{1}{2}$ -chain-wide strips in the oak type were used. Resurveying the same strips annually and noting all infections that were not present in previous years gives a measure of the rate of new center establishment.

The results of the survey from 1955 to 1957 were published in Lake States Technical Notes 520 and 521. The data showed a fairly constant rate of establishment of new infection centers for the 3 years--approximately 1 new center annually per 60 acres of type sampled. During the 1958 remeasurement, however, it was found that the infection level had risen to a rate of 1 new center for each 45 acres sampled. Within this sample only the area in central Minnesota deviated from the upward trend for 1958 by showing a decrease in the rate of new center establishment.

The remeasurements to obtain information on the local rate of spread of the disease showed that in 1956 the permanent plots had an annual average radial spread of 3.5 feet. In 1957 the spread was found to be 4.4 feet. During 1958, however, the rate dropped to 2.6 feet.

Approximately 50 percent of the plots show wilt activity within any 1 year. The lowest percentage was obtained in 1958 when only 40 percent of the plots increased in size. Percentages for Jackson County, Wis., on the other hand, showed a marked increase from unusually low values of 25 and 21 percent for 1956 and 1957 to 36 percent for 1958. While this latest value tends to be more in line with the situation in the other counties, no explanation can be given as to why this increase occurred.

January 1959

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